

REMARKS

Claims 43-56 have been cancelled and new claims 57-68 have been added. Claims 57-68 are currently pending in the application.

Amendments to the specification change citations of patent applications to patent numbers where appropriate and clarify^y that the present application is a continuation-in-part of application 08/950,403.

The new claims generally track the subject matter of claims 13, 14, and 15.

Specific basis for terms in the new claims are as follows:

New Claim(s)	Term/Phrase	Basis
57	"microfluidic processing samples"	Claim 13. Page 10, line 26, to page 11, line 6 (defines "microfluidic processing"). Page 6, lines 1-3 (a purpose of the invention is to process "an array of samples or of test reagents.")
57, 64	"flexible elongate laminate"	Page 6, line 8. Page 9, line 30 (Fig. 11c caption). Fig. 1A & Fig. 4.
57, 64	"a plurality of microstructures arranged therein" in reference to elongate laminate.	Page 5, line 30.
57, 64	"elongate laminate comprising a first lamina having a first surface, a second lamina having a second surface, and a flexible circuit laminate adjacent to the first lamina"	Claims 15 & 32. Page 6, lines 17-24/ Fig. 2B Page 16, line 4, to page 20, line 32 (This passage contains the general description of the "laminate" element of the invention).
57, 64	"first lamina apposes the second surface of the second lamina each opening of the plurality of openings is in fluid communication with one of said plurality of microstructures"	Fig. 2B Page 18, lines 14-25.
57, 64	"flexible circuit laminate comprises a plurality of electrodes, each electrode being in contact with an electroflow medium whenever the electroflow medium is supplied to said microstructures"	Figs. 7a,b; 8a,b; and 11a-c; and the descriptions of such figures in the specification (page 23, line 18, to page 27, line 11)
57, 64	"electroflow medium"	Page 13, lines 3-31.
57, 68	"plurality of electrodes"	Page 35, lines 10-15.
57	"each of said microstructures has a detection region"	Page 7, line 9.
57	"introducing a sample into each of said microstructures"	Page 7, lines 26-27. Page 31, lines 23-25 (Sample "injection" step described in Example 2). Page 19, line 14, to page 20, line 8 ("electrokinetic injection" described).

57	"conducting an assay on the sample in each of said microstructures to form one or more analytes"	Page 15, line 30, to page 16, line 2. Page 30, line 10 (Separation of fluorescent species from other reactants described in Example 1).
57	"electrophoretically separating"	Page 15, line 30, to page 16, line 2.
57	"voltage differential between electrodes"	Page 37, lines 6-12.
58	"electrokinetically injecting said sample into ... microstructures"	Page 19, line 14, to page 20, line 8.
59	"reaction chamber" of microstructure.	Page 29, line 29, to page 30, line 3.
61	"elongate laminate is moved relative to a detector"	Page 7, lines 6-21.
61	"detection field" in reference to "detector."	Page 7, lines 6-21.
62	"said assay is ... enzyme assays and receptor binding assays."	Examples 1 & 2.
63, 67	"first lamina, said second lamina, and said flexible circuit laminate are plastic"	Page 23, lines 27-31.
64, 68	"sample supply reservoir"	Fig. 3A. Page 19, line 21, to page 20, line 8.
64, 68	"sample drain reservoir"	Fig. 3A. Page 19, line 21, to page 20, line 8.
64, 68	"microchannel segments"	Fig. 3A. Page 19, line 21, to page 20, line 8.
64, 68	"elution buffer reservoir"	Fig. 3A. Page 19, line 21, to page 20, line 8.
64, 68	"analyte waste reservoir"	Fig. 3A. Page 19, line 21, to page 20, line 8.
64, 68	"separation channel"	
65	"array of microchannel structures"	Page 15, lines 3-19.
66	"12 x 8 ... or 24 x 16 orthogonal arrangement"	Page 15, lines 20-26.
68	"conductive traces"	Page 24, line 8. Figs. 7a,b; 8a,b; and 11a-c; and the descriptions of such figures in the specification (page 23, line 18, to page 27, line 11).

No new matter has been added by the amendments. Reconsideration of the application is respectfully requested.

Priority

In paragraph 1 of the Office Action, the Examiner objected to the lack of an express statement that the present application is a continuation-in-part of the priority application 08/950,403. The Examiner also suggested that "claims supported by pages 1-33, line 7 have an effective filing date of October 15, 1997, whereas claims supported by page 33, line 8 – end have an effective filing date of October 15, 1998."

Applicants have amended the first paragraph of the specification to expressly state that the present application is a continuation-in-part of USSN 08/950,403.

In regard to the Examiner's comment on support of the claims, Applicants would respectfully modify the Examiner's statement to note that claims supported by "page 33, line 8 – end" may concurrently have support in the section pages 1-33, line 7, the drawings, and the claims as filed.

In view of the above, Applicants respectfully submit that the basis for the Examiner's objection has been obviated.

Form 1449

In paragraph 2, of the Office Action, the Examiner requested that Applicants submit an up-dated list of references on a 1449 form.

Applicants have submitted an up-dated Information Disclosure Statement with an attached 1449 form and copies of cited references not of record.

35 U.S.C. 112 Second Paragraph

In paragraph 3 of the Office Action, the Examiner rejected claims 41-51 for containing phrases that inappropriately describe method steps in a product claim or terms that lack antecedent basis.

Applicants respectfully disagree with this rejection, particularly in view of the amendments. The offending phrase has not been included in the new claims, and all terms now have proper antecedent basis. Accordingly, Applicants respectfully request that the rejection be withdrawn.

35 U.S.C. 103(a)

In paragraph 7 of the Office Action, the Examiner rejected claims 52-55 under 35 USC 103(a) as being unpatentable over Parce (U.S. patent 5,885,470). The Examiner points to elements of Applicants invention (assembly from planar elements; polymeric elements; elongate form; containing a network of channels; electrodes; and the like) that are disclosed in Parce, then merely states that it would be obvious to make the device of Parce from non-rigid (flexible) materials.

Applicants respectfully disagree with the rejection, particularly in view of the amendments. Parce merely teaches the construction and use of individual microfluidics devices. There is no teaching or suggestion of devices comprising arrays of microchannel structures that would be suitable for high throughput assays. Neither does Parce teach or disclose flexible devices that can be rolled or folded for compact use. In fact, the emphasis by Parce of single device construction and/or use teaches away from Applicants' invention which calls for carrying out multiple assays simultaneously on a single device. Accordingly, Applicants submit that the rejection is inappropriate and request that it be withdrawn.

In paragraph 8 of the Office Action, the Examiner rejected claims 41-47 and 56 under 35 USC 103(a) as being unpatentable over Parce (U.S. patent 5,885,470) and further in view of Parce (U.S. patent 5,880,071). The Examiner applied Parce '470 as above. The Examiner further argues that it would have been obvious to one of ordinary skill in the art to combine the flexible substrate disclosed by Parce '071 in col. 13, lines 25-30, for storing samples with the microfluidics device described in Parce '470 to obtain Applicants' invention.

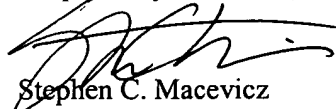
Applicants respectfully disagree, especially in view of the amendments. The substrate mentioned in Parce '071 (optionally flexible) is only used to create an array of samples that are loaded into a microfluidic device between "spacer materials" that keep the samples separate. This teaches away from the concept of Applicants' invention, which calls for the loading of individual samples into individual microfluidics devices, and not the loading of multiple "spaced" samples into a single microfluidics device. Applicants disagree that one of ordinary skill in the art would find their approach obvious from the teaching of Parce '470 or Parce '071, either alone or in combination. Accordingly, Applicants respectfully request that the rejection be withdrawn.

In paragraph 9 of the Office Action, the Examiner rejected claims 48-51 under 35 USC 103(a) as being unpatentable over Parce '470 and Parce '071 in view of Ekstrom et al, U.S. patent 5,376,252. The Examiner applied Parce '470 and '071 as described above. The Examiner cited Ekstrom for its disclosure of microchannels comprising cavities extending partially through an intermediate layer of a microfluidics device, thereby rendering claims to such structures obvious to one of ordinary skill in the art in view of Parce '470 and '071.

Applicants respectfully disagree with the rejection, particularly in view of the amendments. Applicant respectfully submit that the claims no longer recite the elements described by the Examiner, thereby rendering the rejection moot. Accordingly, Applicants respectfully request that the rejection be withdrawn.

If any additional time extensions are required, such time extensions are hereby requested. If any additional fees not submitted with this response are required, please take such fees from deposit account 50-2266.

Respectfully submitted,


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Enclosure:

Information Disclosure Statement with references